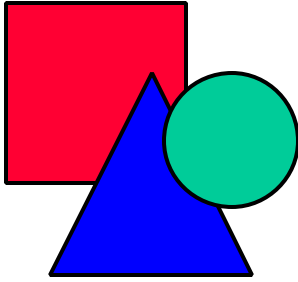


Approval #

970079-U



Safety & Buildings Division  
201 East Washington Avenue  
P.O. Box 7969  
Madison, WI 53707

## Wisconsin Material Approval

Material

Below-Grade Vaults for Flammable Liquid Storage Tanks

Manufacturer

Ancor Precast/Oldcastle, Inc.  
6640 Industry Ave. N.W.  
Ramsey, MN 55303

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### SCOPE OF EVALUATION

The below-grade vaults for flammable liquid storage tanks, as manufactured by Ancor Precast/Oldcastle, Inc., have been evaluated for use in accord with **sections ILHR 10.345 (1) and 10.415 (6)** of the Wisconsin Administrative Flammable and Combustible Liquids Code.

### DESCRIPTION AND USE

The below-grade vaults covered by this approval are designed and constructed to meet Underwriters Laboratory Subject 2245 for below-grade storage of flammable or combustible liquids in aboveground tanks. These vaults are intended for installation in accord with National Fire Protection Association Standards 30 and 30A, and Appendix II-J of the International Fire Code Institute Uniform Fire Code.

Each vault is intended to house a single aboveground flammable and combustible liquid storage tank, such as a UL 142 tank. The tank is positioned in the vault so that the tank can be fully visually inspected after installation and during use.

The standard model numbers are 687, 810, 1016, 1024, and 1134, which can accommodate tank capacities of 700, 1000, 5000, 8500, and 12000 gallons, respectively. Custom models are made in other sizes.

These vaults are constructed of reinforced concrete at least 6 inches thick, and are designed in accord with the American Concrete Institute Building Code Requirements for Reinforced Concrete - ACI 318-95, with design loads according to the American Society for Testing and Materials Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures - ASTM C 857. The vaults may be installed at-grade or below-grade, and are certified by the manufacturer to withstand the HS20-44 wheel loading criteria of the American Association of State Highway and Transportation Officials. The vaults are rectangular and have a keyway to facilitate aligning the top and base halves during assembly in the field.

Various penetrations are made through the lid or at the top of the wall for personnel access, tank filling and fill containment, venting of the primary tank and the vault, dispensing pumps and piping, vapor recovery, inventory probes, and leak detection and alarm systems.

The vaults are made liquid-tight with a fuel-resistant interior coating, a watertight exterior coating, and joint and mechanical penetration sealants that are resistant to fuel, oil, and hydrostatic pressures. One of the manufacturer's technicians assists in applying the sealant to the joint between the two vault sections, and no joints are made below the 100% liquid containment level.

Flotation in areas subject to flooding or high water tables is resisted by a field-constructed reinforced concrete apron that is attached with #4 rebar dowels in a keyway around the bottom of the vault.

The UL Listing Mark is located within 12 inches of the top of the vault, in the vicinity of an access way.

### TESTS AND RESULTS

These vaults have been tested and listed by Underwriters Laboratories, Inc., in accord with UL Subject 2245, Below-Grade Vaults for Flammable Liquid Storage Tanks.

### LIMITATIONS OF APPROVAL

These vaults are approved for compliance with the secondary containment requirements of **ss. ILHR 10.345 (1) and 10.415 (6)**.

All installations shall be done in accord with the manufacturer's instructions and this approval. In the event of any conflict, the more strict requirement shall govern.

Tanks up to 10,000 gallons may be used for vehicle fueling in accord with **s. ILHR 10.415 (3)**.

All vault structural drawings shall bear the stamp of a registered professional engineer. These vaults are not required to be protected from vehicular traffic as specified in **s. ILHR 10.415 (6)(b)**, unless they are subject to vehicular loading that exceeds the AASHTO HS20-44 criteria (which is 32,000 pounds per axle) and exceeds the loading calculated by the design engineer.

Each installation site shall be evaluated for the potential for uplift from flooding or high water tables, including when the tank is empty, and sufficient anchoring shall be provided where needed, in accord with **s. ILHR 10.415 (6)(c)**.

Each vault shall be equipped with the liquid-detection system specified in **s. ILHR 10.415 (6)(d)**, the ventilation means specified in **s. ILHR 10.415 (6)(e)**, the liquid-recovery means specified in **s. ILHR 10.415 (6)(f)**, the entry warning signs specified in **s. ILHR 10.415 (6)(h)**, and the fire suppression capability specified in **s. ILHR 10.415 (6)(i)**.

All penetrations through each vault shall be above the level of 110 percent capacity of the tank, as specified in **s. ILHR 10.415 (6)(k)**.

Inspections of the vault interior and the vault's contents shall be made approximately one year after installation and at least once every five years thereafter, in accord with **s. ILHR 10.415 (6)(n)**.

Inspections and any other entry into the vault shall be performed in accord with the Occupational Safety and Health Administration procedures for entry into confined spaces. Consequently, the requirements of the Wisconsin Building and Heating, Ventilating and Air Conditioning Code, chapters ILHR 50 to 64, do not apply to these vaults.

A spill container shall be provided at the fill opening in accord with **s. ILHR 10.415 (12)(a)**.

The installer of the tank within each vault shall be certified by the Department in accord with **chapter Comm 5**.

This approval will be valid through December 31, 2002, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the Department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

#### DISCLAIMER

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified herein.

Reviewed by: \_\_\_\_\_

Approval Date: \_\_\_\_\_ By: \_\_\_\_\_

Sam Rockweiler, P.E.  
Code Development Section  
Program Development Bureau